

CLAIM AMENDMENTS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. The status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

Claims 1 - 26 (Canceled).

1 27. (Previously Presented) A method of imaging a portion of the aorta of
2 a patient using a magnetic resonance imaging system, the method comprising:
3 determining an arrival time of a test bolus in a region of interest;
4 correlating an administration of a magnetic resonance contrast agent with an
5 acquisition of magnetic resonance image data, including image data which is
6 representative of the center of k-space, using the arrival time of the test bolus;
7 administering the magnetic resonance contrast agent to the patient; and
8 acquiring the magnetic resonance image data using a 3D pulse sequence,
9 wherein the image data which is representative of the center of k-space is acquired
10 while the concentration of the contrast agent in the portion of the aorta is greater
11 than a concentration of the contrast agent in veins and background tissue adjacent
12 to the portion of the aorta.

1 28. (Previously Presented) The method of claim 27 wherein acquiring
2 magnetic resonance image data further includes using a flip angle which is greater
3 than about 30° and less than or equal to about 90°.

1 29. **(Previously Presented)** The method of claim 27 wherein acquiring
2 magnetic resonance image data further includes using a TR which is less than about
3 10 milliseconds and a TE which is less than about 3 milliseconds.

1 30. **(Previously Presented)** The method of claim 27 wherein acquiring
2 magnetic resonance image data further includes acquiring a substantial portion of
3 the image data which is representative of the central portion of k-space while the
4 patient suspends respiration.

1 31. **(Previously Presented)** The method of claim 27 further including
2 correlating the acquisition of the image data which is representative of the center of
3 k-space with the suspension of respiration by the patient.

1 32. **(Previously Presented)** The method of claim 27 further including
2 imaging at least one renal artery of the patient by acquiring magnetic resonance
3 image data, of a coronally oriented image volume including the renal artery wherein
4 the image data being acquired while the concentration of the contrast agent in the
5 renal artery is substantially greater than a concentration of the contrast agent in
6 veins and background tissue adjacent to the artery.

1 33. **(Previously Presented)** The method of claim 27 further including
2 imaging at least one renal artery of the patient by acquiring magnetic resonance
3 image data including image data which is representative of the center of k-space
4 while the concentration of the contrast agent in the renal artery is substantially

5 greater than a concentration of the contrast agent in veins and background tissue
6 adjacent to the artery.

1 34. **(Currently Amended)** The method of claim 34 33 wherein imaging at
2 least one renal artery of the patient further includes collecting 3D phase contrast
3 images.

1 35. **(Previously Presented)** The method of claim 27 wherein the image
2 volume of the 3D pulse sequence includes at least one dimension which is greater
3 than 25 cm.

1 36. **(Previously Presented)** The method of claim 27 further including:
2 collecting image data of a pre-contrast image data set including collecting
3 image data before administering a substantial amount of the magnetic resonance
4 contrast agent to the patient; and

5 constructing an image of the portion of the aorta by subtracting the image
6 data of the pre-contrast image data set from the image data acquired while the
7 concentration of the contrast agent in the portion of the aorta is greater than a
8 concentration of the contrast agent in veins and background tissue adjacent to the
9 portion of the aorta.

1 37. **(Previously Presented)** The method of claim 27 further including
2 acquiring image data of the periphery of k-space while the concentration of the

3 contrast agent in the aorta is greater than a concentration of the contrast agent in
4 veins and background tissue adjacent to the aorta.

1 38. **(Previously Presented)** A method of imaging an artery of a patient
2 using a magnetic resonance imaging system, the method comprising:

3 determining an arrival time of a magnetic resonance contrast agent in a
4 region of interest wherein the region of interest includes the artery;

5 correlating an injection of the magnetic resonance contrast agent to the
6 patient with a collection of magnetic resonance image data using the arrival time of
7 the magnetic resonance contrast agent in the region of interest;

8 injecting the magnetic resonance contrast agent to the patient; and

9 collecting the magnetic resonance image data using a 3D pulse sequence,
10 wherein collecting magnetic resonance image data includes collecting a substantial
11 portion of the image data while the concentration of the contrast agent in the artery
12 is greater than a concentration of the contrast agent in veins and background tissue
13 adjacent to the artery.

1 39. **(Previously Presented)** The method of claim 38 wherein the arrival
2 time of the magnetic resonance contrast agent is an estimated arrival time.

1 40. **(Previously Presented)** The method of claim 38 further including
2 correlating collection of magnetic resonance image data which is representative of
3 the center of k-space with the arrival time of the contrast agent in the region of
4 interest.

1 **41. (Currently Amended)** The method of claim 38 wherein determining the
2 arrival time of a magnetic resonance contrast agent in the region of interest includes
3 using an arrival time of a test bolus.

1 **42. (Previously Presented)** The method of claim 38 further including
2 correlating the suspension of the respiration of the patient with the collecting
3 magnetic resonance image data.

1 **43. (Previously Presented)** The method of claim 42 wherein correlating
2 the suspension of the respiration of the patient with the collecting magnetic
3 resonance image data includes collecting a substantial portion of the image data
4 which is representative of the center of k-space while the patient suspends
5 respiration.

1 **44. (Previously Presented)** The method of claim 42 wherein collecting
2 magnetic resonance image data further includes using a TR which is less than about
3 10 milliseconds, a TE which is less than about 7 milliseconds, and a flip angle which
4 is between about 30° and about 90°.

1 **45. (Previously Presented)** The method of claim 38 further including
2 imaging at least one renal artery of the patient by collecting image data which is
3 representative of the center of k-space while the concentration of the contrast agent
4 in the renal artery is greater than a concentration of the contrast agent in veins and
5 background tissue adjacent to the artery.

1 46. **(Previously Presented)** The method of claim 38 wherein collecting
2 magnetic resonance image data further includes using a slice thickness which is
3 less than about 4 millimeters and the image volume of the 3D pulse sequence
4 includes at least one dimension which is at least about 25 centimeters.

1 47. **(Previously Presented)** The method of claim 38 wherein collecting
2 magnetic resonance image data further includes collecting image data of the
3 periphery of k-space while the concentration of the contrast agent in the artery is
4 greater than a concentration of the contrast agent in veins and background tissue
5 adjacent to the artery.

1 48. **(Previously Presented)** The method of claim 38 wherein determining
2 the arrival time of a magnetic resonance contrast agent in the region of interest
3 includes estimating the arrival time based on the physical condition of the patient or
4 the location of the artery in the patient.

1 49. **(Previously Presented)** A method of imaging an artery of a patient
2 using a magnetic resonance imaging system, the method comprising:
3 calculating an arrival time of the contrast agent in the region of interest;
4 injecting a magnetic resonance contrast agent to the patient;
5 correlating collection of magnetic resonance image data which is
6 representative of the center of k-space with the injection of the magnetic resonance
7 contrast agent using the arrival time of the contrast agent in the region of interest;

8 collecting magnetic resonance image data, including the image data which is
9 representative of the center of k-space, using a 3D pulse sequence, wherein at least
10 a portion of the image data is collected while the concentration of the contrast in the
11 artery is greater than a concentration of the contrast agent in veins and background
12 tissue adjacent to the artery.

1 50. **(Previously Presented)** The method of claim 49 wherein calculating
2 the arrival time of the contrast agent in a region of interest includes using a test
3 bolus.

1 51. **(Previously Presented)** The method of claim 49 wherein collecting
2 magnetic resonance image data includes collecting a substantial portion of the
3 image data while the patient suspends respiration.

1 52. **(Previously Presented)** The method of claim 49 wherein collecting
2 magnetic resonance image data further includes using a TR which is less than about
3 10 milliseconds.

1 53. **(Previously Presented)** The method of claim 49 further including
2 imaging at least one renal artery of the patient by collecting magnetic resonance
3 image data using a 3D pulse sequence, the image data being collected while the
4 concentration of the contrast agent in the renal artery is greater than a concentration
5 of the contrast agent in veins and background tissue adjacent to the renal artery.

1 54. **(Previously Presented)** The method of claim 49 wherein calculating
2 the arrival time of a magnetic resonance contrast agent in the region of interest
3 includes calculating the arrival time based on the physical condition or age of the
4 patient.

1 55. **(Currently Amended)** The method of claim 49 further including
2 instructing the patient to suspend respiration before while collecting the magnetic
3 resonance image data which is representative of the center of k-space.

1 56. **(Previously Presented)** The method of claim 49 wherein collecting
2 magnetic resonance image data includes collecting image data which is
3 representative of the periphery of k-space immediately after collecting image data
4 which is representative of the center of k-space.

1 57. **(NEW)** The method of claim 27 wherein calculating the arrival time of
2 the contrast agent in a region of interest includes using an arrival time of a test
3 bolus.

1 58. **(NEW)** The method of claim 38 further including instructing the patient
2 to suspend respiration immediately before collecting the magnetic resonance image
3 data which is representative of the center of k-space.

- 1 59. **(NEW)** The method of claim 49 further including instructing the patient
2 to suspend respiration immediately before collecting the magnetic resonance image
3 data which is representative of the center of k-space.